

Adverse Childhood Experiences:

“ACEs” - What they are & why we should care



OBJECTIVES:

1. ACEs change our brain
2. We pass this change along to the next generation
3. This is preventable

(Reminder – Thumbs up)

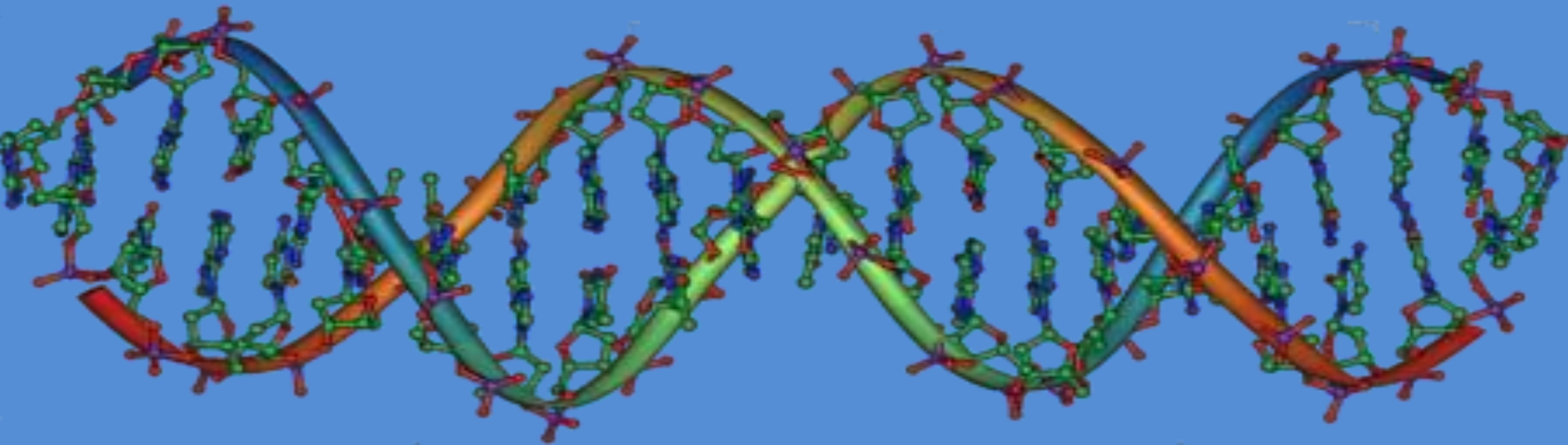
Timeline of Events

Technology & Science

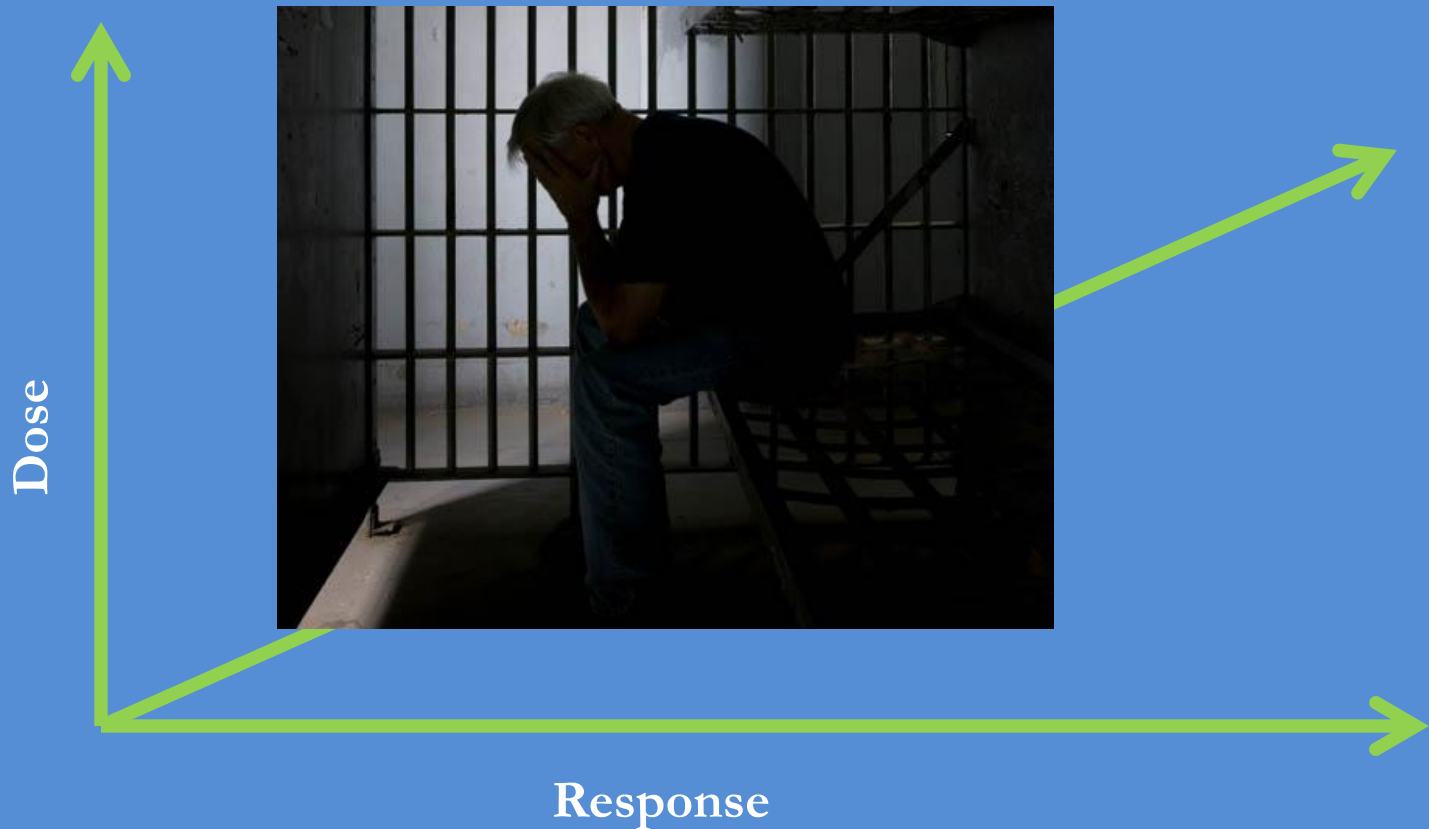
Health & Development

1995 – 1997

ACE Study



“What Happened to You?”



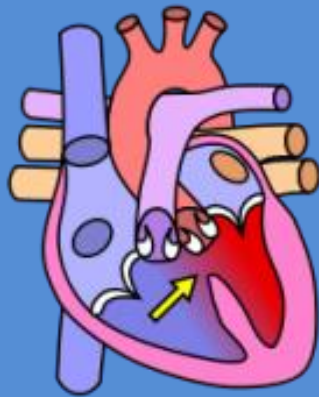
ACE Score: Common Language

One Count
for each type

1. Emotional Neglect
2. Emotional Abuse
3. Physical Neglect
4. Physical Abuse
5. Sexual Abuse
6. Mother Treated Violently
7. Parent Separation/Divorce
8. Household Substance Abuse
9. Household Mental Illness
10. Incarcerated Family Member

ACEs Impact Adults *50 Years Later*

As ACE scores go up...



Cancer
Fractures
Diabetes
Liver disease
Lung disease
Heart disease

ACEs: Common among general population (2/3 have 1)
Leading Determinant of Health & Social Well Being

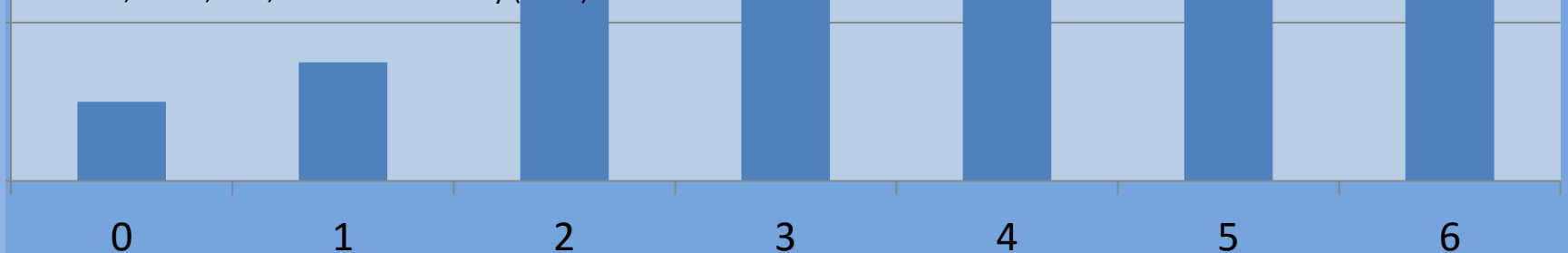
ACEs:

Accumulate & Tend to occur in groups

4 ACEs More Likely to:

- 2x - Smoke
- 7x - Become Alcoholic
- 10x - Inject Street Drugs
- 12x - Attempt Suicide
- 32x – Behavioral Problems in School

Center for Disease Control
Carrion, Victor, PhD; Stanford University (2014)

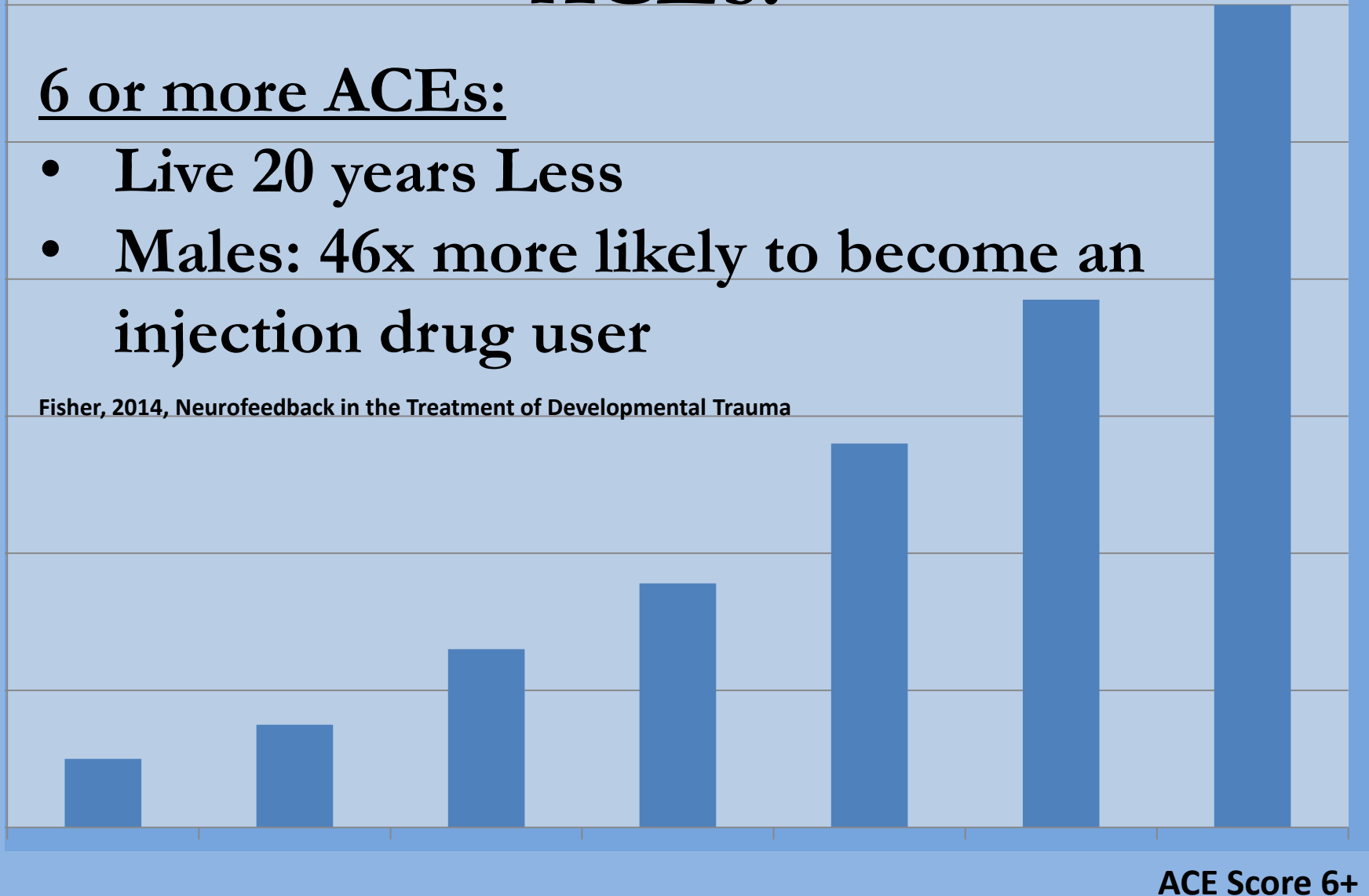


ACEs:

6 or more ACEs:

- Live 20 years Less
- Males: 46x more likely to become an injection drug user

Fisher, 2014, Neurofeedback in the Treatment of Developmental Trauma



POLYVICTIMIZATION: Reformatting the ACES Inventory

A condition, not an event

Exposure to one type of violence doubles risk of others. For instance:

Past year assault correlated with

- 2.7 x greater likelihood of sexual victimization
- 2.9 x greater likelihood of caregiver maltreatment

1 in 6 children experienced 6 or more types of victimization



No safe haven

The predictive value of classic ACEs are not all equally as strong

Most predictive of adverse outcomes for children:

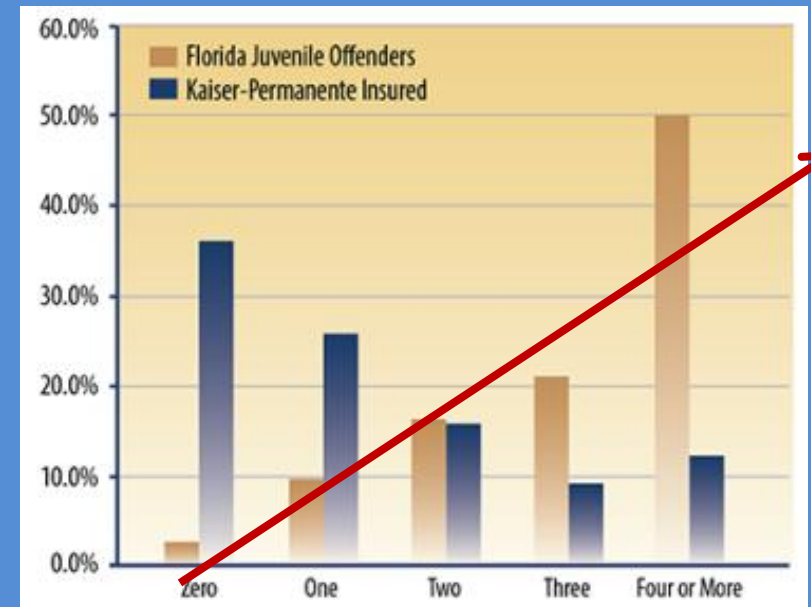


- ➔ Poverty
- ➔ Exposure to violence
- ➔ Social isolation
- ➔ Peer victimization

ACEs:

Study Confirms Link Between Juvenile Offenders ACE rates much higher than CDC's ACE Study

- Top 3 most prevalent ACEs are same for males/females
 - Family violence
 - Parental separation or divorce
 - Household member incarceration
- 2/3 of the juvenile offenders reported these ACEs

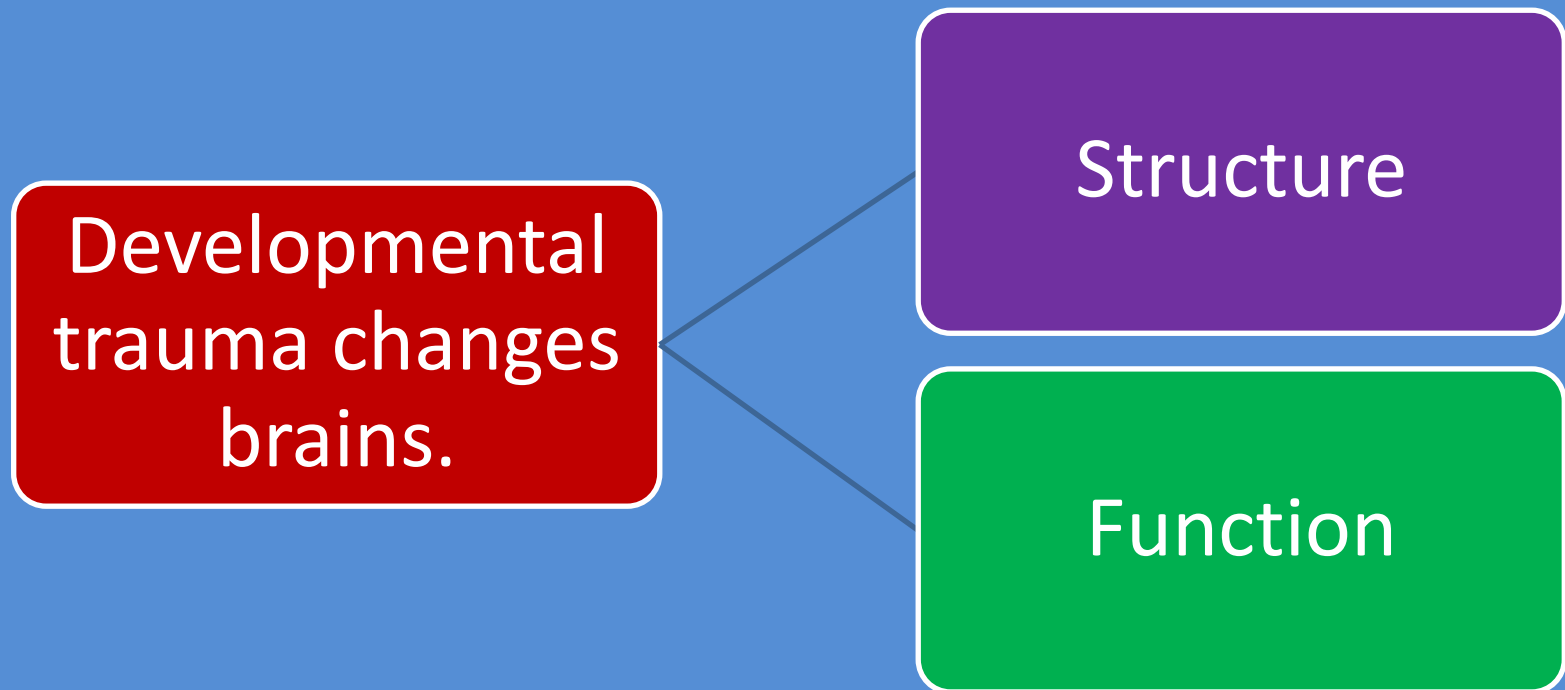


<http://www.journalofjuvjustice.org/JOJJ0302/JOJJ0302.pdf> 2014 Spring

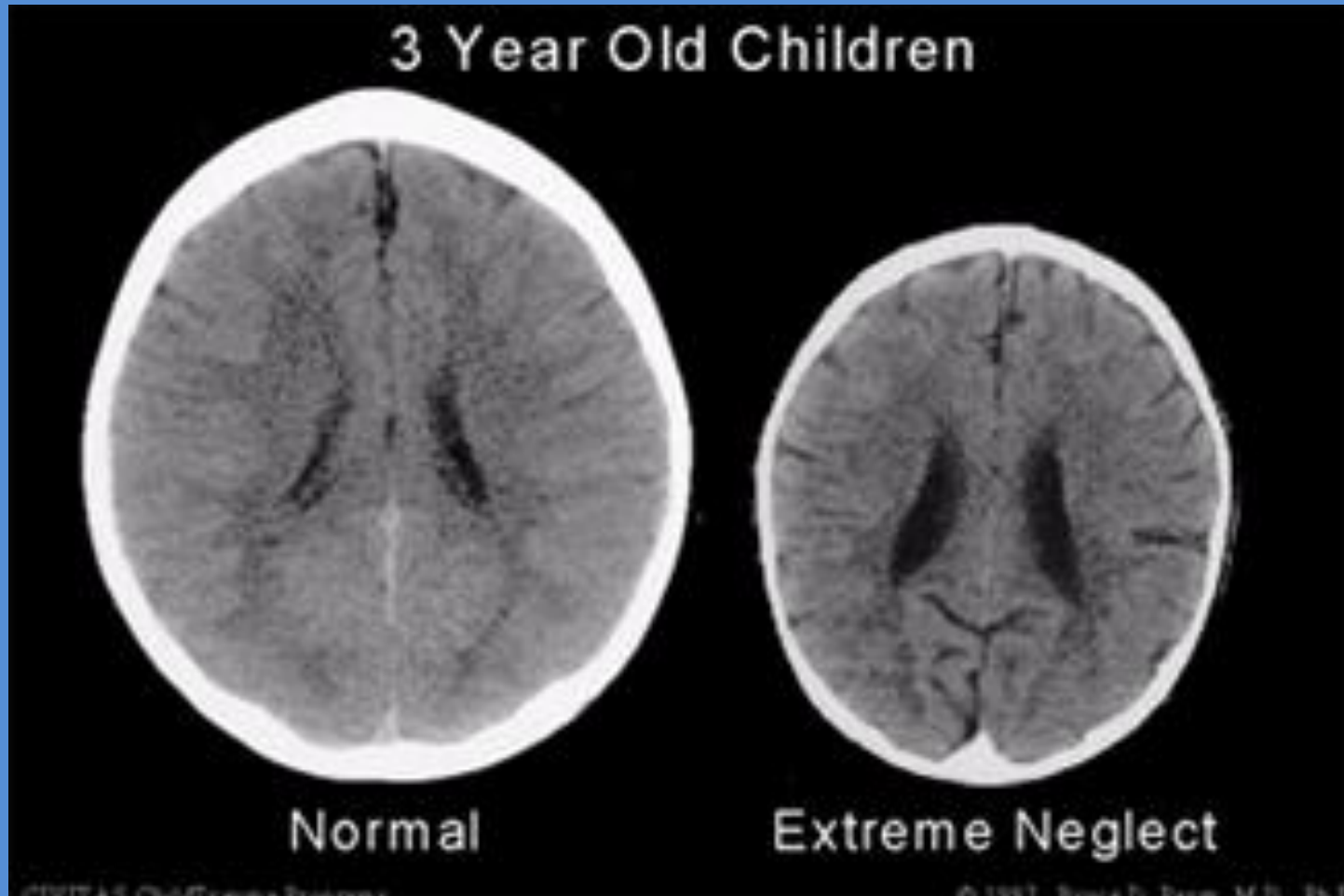
<https://acestoohigh.com/2014/08/20/florida-study-confirms-link-between-juvenile-offenders-aces-rates-much-higher-than-cdcs-ace-study/>

<https://www.childdeathreview.org/wp-content/uploads/NCRPCD-Docs/NCFRP-Webinar-030817-Applying-ACES-slides.pdf>

The impact of TRAUMA is more global on children than adults.



Toxic stress reduces brain volume by as much as 20%



Type and Timing of Adversity Matters

Nurturance at age 4
predicts brain volume at
age 14

Physical abuse
correlates with later
drug and alcohol abuse



Childhood Sexual Abuse

Changes the brain

affecting the **visual cortex** through the fusiform gyrus which is involved in facial recognition

and

reducing cortical thickness, resulting in thinning in the portion of the **somatosensory cortex** that represents the genital area.





Witnessing intimate partner violence reduces the visual-limbic pathway by 20% in gray matter volume.
determining emotional and memory response to things we see.

Family Violence

Witnessing family violence toward siblings

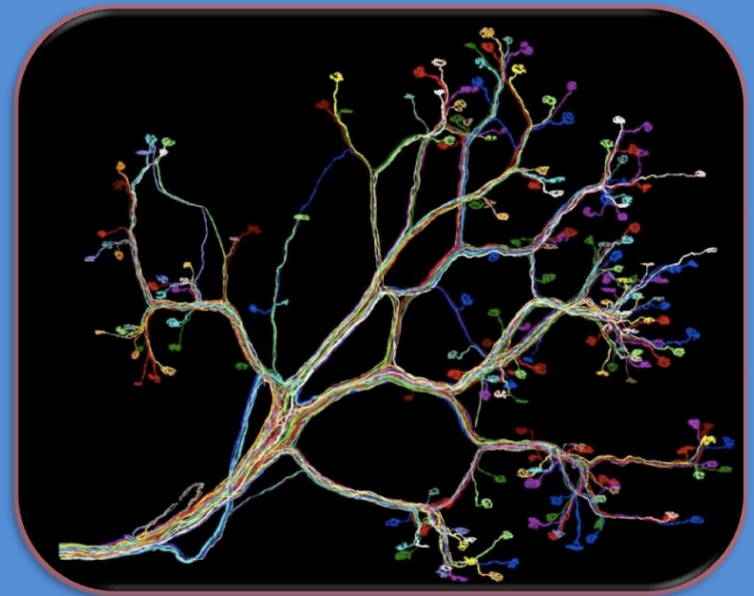
- Comparable to the effect sizes of experiencing sexual abuse
- Negative effects are far greater than witnessing violence toward mothers or fathers

Exposure to parental verbal abuse

- Changes **white matter pathways** related to language processing = lowered verbal IQ.
- Psychiatric effects comparable to extra-familial sexual abuse.
 - **Depression, anger, somatic symptoms, dissociation, personality disorders**

Toxic Stress—strong, prolonged, frequent

**Chronic, threatening
circumstances elicit a
persistent fear response.**



Wired for Fear and Anger



Amygdala (fear, rage, shame)
volume increases: changes are
permanent.

Hippocampus (memory,
reward, inhibition) volume
reduces: changes can be
altered.

You can't talk to an amygdala.

Why do symptoms seem to worsen over time?

Kindling: chronic stimulation of the limbic system and the HPA axis leads to activation of the sympathetic nervous system with less and less provocation, generalizing to ever widening circumstances.

- Even when the threat has passed, the effects may continue.
- What are the implications for learning/building positive relationships/successful job performance?

Delayed Manifestations

The traumatized state is set in childhood.



The hippocampus begins to reduce in adolescence, not in childhood. Major depression begins in puberty and may carry forward throughout life.

There may be a silent period with consequences unfolding later.

Childhood maltreatment is a major risk factor for psychiatric disorders.



Intergenerational Transmission of Trauma



Maternal stress in infancy changed **genetic expression** & showed up at age 15 in behavioral problems



Epigenetics

Genes are the hardware. The epigenome is the software operating system.

Chemical signatures are written on top of the gene through exposure to toxic stress. The stress switches genes “on” or “off” making them expressed or silent.

Toxic stress can shorten alleles, which are then associated with alcoholism, cancer, dementia, diabetes, heart disease...

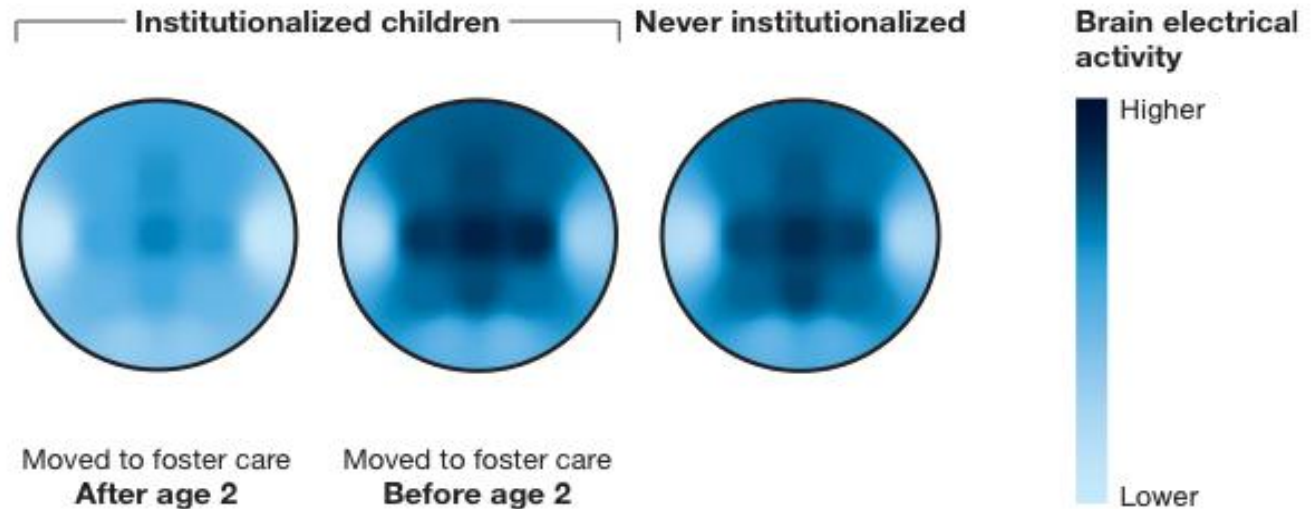
A mother's stress can alter gene expression in her own DNA, which she could then pass down to her child.—Kerry Ressler, in *The Anatomy of Fear*, by Martha

McKenzie, *Emory Medicine Magazine*, Spring 2014

RESILIENCE

CRITICAL YEARS

The amount of brain activity in the earliest years affects how much there is later in life. These EEG scans of eight-year-olds show that institutionalized children who were not moved to a nurturing foster care environment before they were two years old have less activity than those who were.



SOURCE: CHARLES NELSON, HARVARD MEDICAL SCHOOL

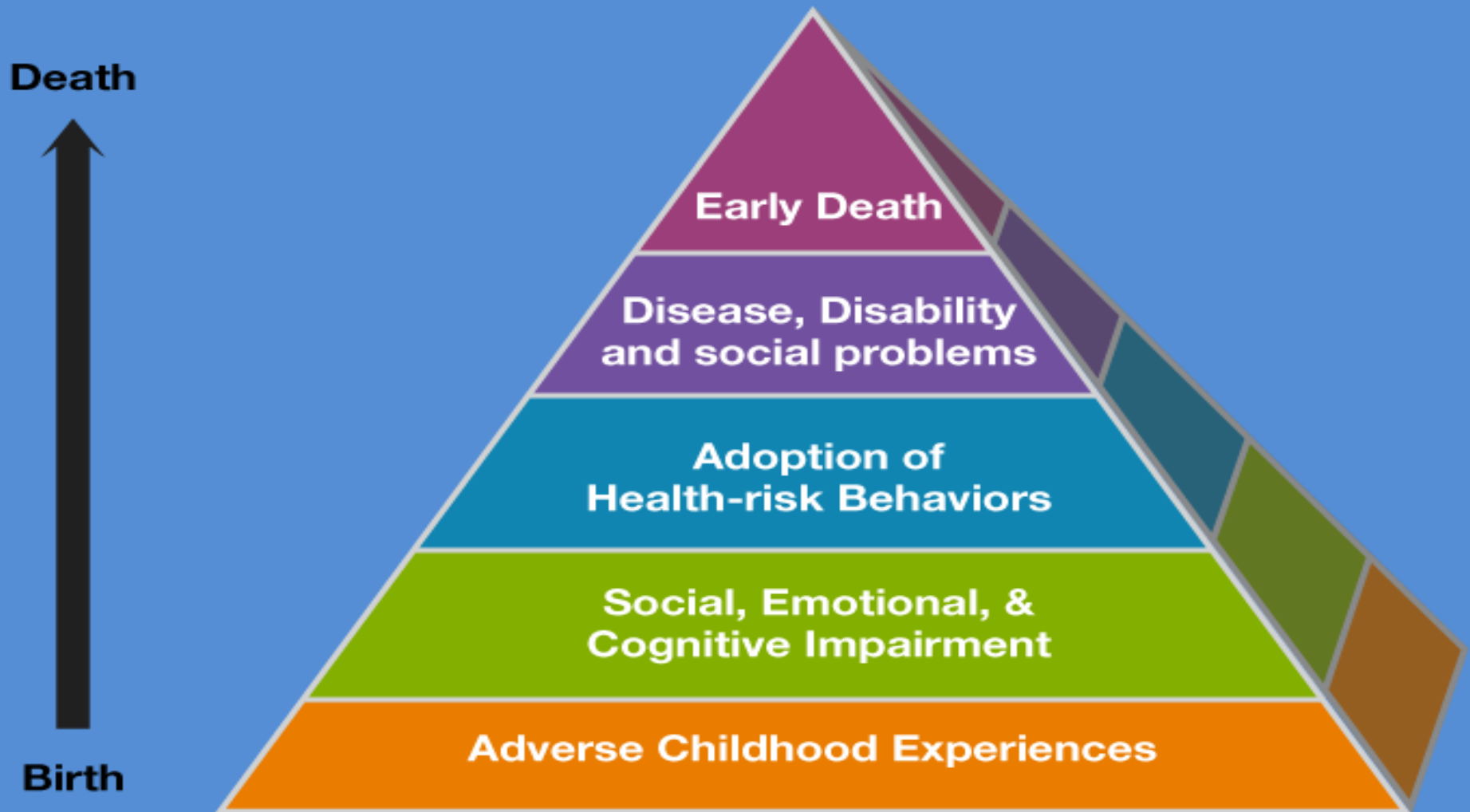
The ability to adapt to adverse experiences and regain strength, health, or success.

Luthar & Brown, 2007 as cited in Panter-Brick and Leckman, 2013. Resilience in child development—interconnected pathways to wellbeing. Journal of Child Psychology and Psychiatry, 54:4 pp333 – 336.

Resilience and recovery are NOT the same as “without injury.”

- Developmental damage shows up in brain scans, even when individuals are not symptomatic.
- Neural plasticity does make recovery and adaptation possible.

Adult Disease: A Developmental Disorder?



Smart Investment

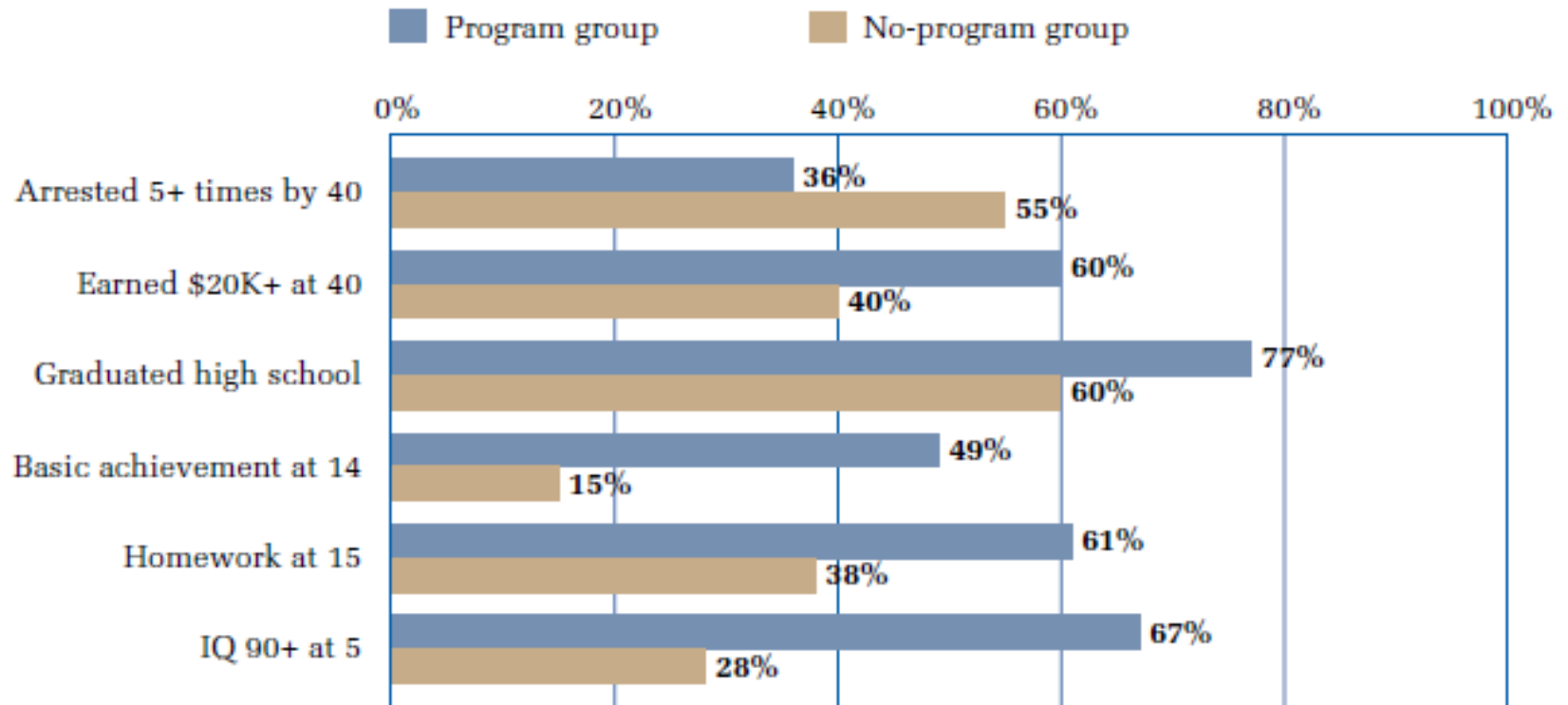
13.7%

per annum

Natl. Institute of Early Education Research:

The Perry Preschool program monitored control groups over 4 decades.

Figure 1
Major Findings: High/Scope Perry Preschool Study at 40



PROTECTIVE FACTORS

When present & robust, the likelihood of abuse & neglect diminish.

1. Parent Resilience
2. Knowledge of Parenting & Child Development
3. Social & Emotional Competence of Children
4. Social Connections
5. Concrete Support in Times of Need



Towards a Trauma Informed Community

- What makes trauma, trauma?
- Being TI – Recognizing it is common, focus on what happened to you
- Understanding the vulnerabilities/triggers of survivors
- Avoiding re-traumatization

Systems Thinking Trauma Lens

1. Ecological systems—children grow up in families
2. Inter-generational – empower adults in children's lives
3. Life course - Start early
4. Nurturing Care – safety, nutrition, etc.

www.CSSP.org 2017



<https://www.slideshare.net/DeniceColson/links-between-childhood-trauma-and-adult-disease-becoming-trauma-informed>

EFFECT OF Trauma-Oriented Evaluations on Doctor Office Visits

Benefits of Incorporating a Trauma-oriented Approach

- Biomedical evaluation:
(Control group) 11% reduction in DOVs
(Doctor Office Visits)
in subsequent year.
(700 patient sample)
- Biopsychosocial evaluation:
(Trauma-oriented approach) 35% reduction in DOVs
in subsequent year.
(>120,000 patient sample)

Our Community's Reactions: Frederick County

- Public Awareness

From 2 to 20 to 1400 in one year

- Systems Response

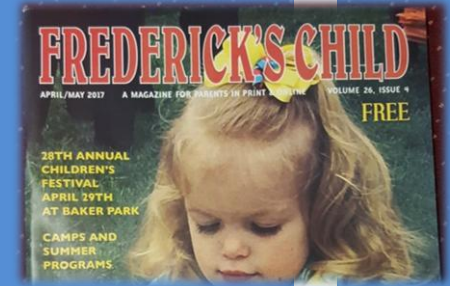
Increased Collaboration across institutions

Local Health Improvement Plan

Interagency Early Childhood Committee

Mount St. Mary's University

- Next Steps



Nothing you do for children is ever wasted.



"Safety and security don't just happen. They are the result of collective consensus and public investment. We owe our children, the most vulnerable citizens in our society, a life free of violence and fear."

--Nelson Mandela

Clear Vision Common Goal Collective Impact

Resources: Research

Lifetime Effects: The High/Scope Perry Preschool Study Through Age 40 (pp. 194–215), by Lawrence J. Schweinhart, Jeanne Montie, Zongping Xiang, W. Steven Barnett, Clive R. Belfield, & Milagros Nores, 2005, Ypsilanti, MI:High/Scope Press. © 2005 by High/Scope® Educational Research Foundation.

Luthar & Brown, 2007 as cited in Panter-Brick and Leckman, 2013. Resilience in child development—interconnected pathways to wellbeing. *Journal of Child Psychology and Psychiatry*, 54:4 pp333 – 336.

PEDIATRICS. 2012, The Lifelong Effects of Early Childhood Adversity and Toxic Stress; Jack P. Shonkoff, MD, Andrew S. Garner, MD, PhD, etc.

David Finkelhor, Recent Findings from the National Surveys of Children's Exposure to Violence. Lecture January 27th, 2016

Teicher, M., and Vitaliano, G. (2011). Witnessing violence toward siblings; an understudied but potent form of early adversity. *PLoS ONE* 6(12): e28852.

Martin Teicher, 25th Annual International Trauma Conference, Boston MA, 2014

National Scientific Council on the Developing Child (2010). Early Experiences Can Alter Gene Expression and Affect Long-Term Development: Working Paper No. 10. <http://www.developingchild.net>

Children's Exposure to Violence, Crime, and Abuse: An update. *OJJDP Juvenile Justice Bulletin*, September 2015. Retrieved from <https://www.ojjdp.gov/pubs/248547.pdf>

Creating Trauma Informed Provider Organizations, Georgetown University Center for Child and Human Development, retrieved from http://gucchdtacenter.georgetown.edu/data/issues/2015/0215_article.html

EMDR: an evidence based treatment for trauma victims, *Victims and Offenders*, 4:391–397, 2009, Copyright © Taylor & Francis Group, LLC ISSN: 1556-4886 print/1556-4991 online, DOI: 10.1080/15564880903227495 (pdf)

Gapen, M., van der Kolk, B., Hamlin, E., Hirschberg, L., Suvak, M., and Spinazzola, J. 2016. A Pilot Study of Neurofeedback for Chronic PTSD. *Applied Psychophysiology and Biofeedback*, 40(4). retrieved from

http://www.traumacenter.org/products/pdf_files/Pilot_Study_Neurofeedback_Chronic_PTSD_G0002.pdf

van der Kolk et al., 2014. Yoga as an adjunctive treatment for posttraumatic stress disorder. *Journal of Clinical Psychiatry*, 75(0). Retrieved from http://www.traumacenter.org/products/pdf_files/Yoga_Adjunctive_Treatment_PTSD_V0001.pdf

Felitti, et al. (1998). Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults. *American Journal of Preventive Medicine*.

Resources: URLs

- TED TALK: https://www.ted.com/talks/nadine_burke_harris_how_childhood_trauma_affects_health_across_a_lifetime
- Centers for Disease Control: <https://www.cdc.gov/violenceprevention/cestudy/>
- Take the survey: <http://www.npr.org/sections/health-shots/2015/03/02/387007941/take-the-ace-quiz-and-learn-what-it-does-and-doesnt-mean>
- ACEs networks: <http://www.acesconnection.com/>
- National Child Traumatic Stress Network: <http://www.nctsn.org/>
- American Academy of Pediatrics: <https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/resilience/Pages/ACEs-and-Toxic-Stress.aspx>
- CANarratives.org

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